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Department of Energy

Washington, DC 20545

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JUN 20 1990

Mr. Glen Sjoblom  
Deputy Director  
Division of Industrial  
and Medical Nuclear Safety  
Office of Nuclear Materials  
Safety and Safeguards  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Sjoblom:

As a part of its Formerly Utilized Sites Remedial Action Program (FUSRAP), the U. S. Department of Energy (DOE) is trying to identify all sites and facilities where radioactive materials were handled, processed or used in support of Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) activities from 1942 through the mid-1960's. The authority to conduct remedial action under FUSRAP, derived from the Atomic Energy Act of 1954, as amended, is limited to those sites operated prior to the establishment of AEC licensing requirements, and at sites that were subsequently used but not licensed. The purpose of this letter is to advise of actions being considered by the Department with respect to several recently identified sites that were apparently operated under AEC Material Licenses. We request your assistance in locating information on these sites.

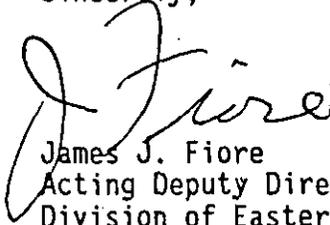
DOE previously notified NRC of several sites where licenses were held by AEC contractors and suppliers. This letter supplements the information in the earlier letter. A copy of the earlier letter, dated May 14, 1986, is enclosed for your convenience (Enclosure 1).

We believe several of the most recent sites have or had licenses. These are listed in Enclosure 2, which also includes a summary of known information about each site.

We also would appreciate any information NRC might have concerning several other sites that were or might have been licensed by the AEC due to the significant quantities of radioactive materials handled or processed during the early 1960's. A third list, Enclosure 3, lists some sites which handled large amounts of radioactive materials. Although DOE has no records to indicate that these sites were licensed, it is possible that they were because of the large amounts of materials handled at these sites. The Commission's records (if any) would be a valuable source of accurate information for these sites. If the Commission has any records relevant to these sites, we would appreciate a copy.

I would like to meet with you or your staff to discuss these sites further. To arrange a meeting, I will call you in about a week, or you can call me at 353-4716.

Sincerely,



James J. Fiore  
Acting Deputy Director  
Division of Eastern Area Programs  
Office of Environmental Restoration

3. Enclosures



Department of Energy  
Washington, D.C. 20545

MAY 14 1986

Mr. William T. Crow, Acting Director  
Uranium Fuel Licensing Branch  
U.S. Nuclear Regulatory Commission  
7915 Eastern Avenue  
Silver Spring, Maryland 20555

Dear Mr. Crow:

The Department of Energy (DOE), as a part of its Formerly Utilized Sites Remedial Action Program (FUSRAP), is conducting efforts to identify all sites and facilities, primarily in the private sector, where radioactive materials were handled, processed or used in support of Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) activities during the period 1942 through the mid-1960's. As you know, the authority to conduct remedial action under FUSRAP, derived from the Atomic Energy Act of 1954, as amended, is limited to those sites operated prior to the establishment of AEC licensing requirements and at sites that were subsequently used but not licensed. The purpose of this letter is to advise of actions being considered by the Department with respect to several sites recently identified that were apparently operated under AEC Source Material Licenses and to request your assistance in locating information on several other sites that might have been licensed by the AEC due to the significant quantities of uranium metal handled or processed during the early 1960's.

During a recent review of records maintained at the DOE Feed Materials Processing Center (FMPC) by the National Lead Company of Ohio (NLO), a number of sites were identified that performed work in areas described above under subcontract or purchase order with NLO. Unfortunately, information describing the operations at each of these sites, and particularly the radiological status of the sites at the time work was completed or contracts were terminated, is limited. However, we were able to obtain the numbers for AEC source material licenses that were apparently in effect at the time work was performed at four of the sites. Our contractor (Aerospace Corporation) determined from discussion with you that one of the sites, American Bearing Company, had a license covering the type of operations conducted for the AEC through National Lead and that the site had been decontaminated to NRC satisfaction (Enclosure 1, Part A). Further coordination with NRC's Material Licensing Branch (FCML) records center revealed that three additional sites identified in the FMPC records were operated under Source Material Licenses that have since been terminated (also Enclosure 1, Part A), and three sites are currently operating under active NRC licenses (Enclosure 1, Part B).

The four sites in Enclosure 1, Part A, referred to above were operated under AEC source material licenses and are assumed to be under NRC

jurisdiction. These sites will be eliminated from further consideration under FUSRAP, unless further information is obtained from you to indicate otherwise within the next 30 days. We have assumed that these sites were cleaned up to NRC's satisfaction as a condition of license termination.

Part B of Enclosure 1 also includes information on three sites identified in the FMPC records which are currently operating under active NRC licenses. These three sites will also be eliminated from further consideration under FUSRAP due to the limited amount of information identified in the records (suggesting the operations were relatively small) and the small quantities of radioactive material believed to have been involved in operations at the site. Please notify us within the next 30 days if you have information that suggests there is a need for further investigation of these sites.

Sites listed in Enclosure 2 are those NLO subcontractors identified as having AEC licenses that have been terminated. As indicated above, information describing the extent of the operations and the radiological status of the sites at the termination of the AEC work is limited and is summarized in the enclosure. We do not know if the license had any relation to the NLO work, but the NRC docket under which the licenses were retired might provide some information to assist in evaluating the potential for contamination and/or the DOE authority for remedial action, if required, under FUSRAP. However, our contractor has not been able to locate dockets for these sites through your docket room. Therefore, your assistance is requested in locating and obtaining access to the records contained in the dockets identified in this Enclosure.

Although over 80 sites, including those described above, were identified during our review of the FMPC records, the use of radioactive materials at most of these sites was limited to test quantities for research and development or equipment proof testing. Most of these sites were probably never licensed. However, at the six sites identified in Enclosure 3, operations were extended over a considerable period during the later 1950's and early 1960's and involved up to ton quantities of uranium metal and/or other radioactive material. Therefore, it is possible that these facilities may have been licensed. At three of the sites, several hundred tons of uranium slugs were machined and centerless ground, thus creating a considerable potential for residual radioactive contamination if the sites were not properly decontaminated upon completion of the work. If these sites were licensed, records maintained by the NRC may be a source of reliable information to assess the potential for contamination and/or the authority for remedial action under FUSRAP. We have not been able to identify any license information to date. Therefore, your assistance is requested to determine if information is available on the operations at these sites.

In the interest of economy, the Department will continue to assemble as much information as can be found on these sites to determine the potential for residual radioactive contamination and to resolve the questions of authority to conduct remedial action, before resorting to expensive and time consuming radiological surveys to determine the current radiological

status of the sites. Therefore, a response to this request for assistance at your earliest convenience would be greatly appreciated.

Sincerely,

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Edward G. DeLaney, Director  
Division of Facility and Site  
Decommissioning Projects  
Office of Nuclear Energy

3 Enclosures

ENCLOSURE 1

FORMERLY UTILIZED SITES ELIMINATED FROM FUSRAP

A. Sites Operated Under AEC Source Material Licenses

Subcontractor

License Number

- ✓ 1. American Bearing Corporation      Nr. C-3737 (Source Material)  
429 South Main Street  
Indianapolis, IN

Description of Operations:

The Corporation was a subsidiary of NLO. Metal fabrication work (uranium metallographic samples) was done 1955-1957. During a telephone conversation on 20 December 1985, Mr. Bill Crowe of NRC advised that the site was cleaned up to NRC's satisfaction.

2. Ajax-Magnethermic Corporation      Nr. C-4275 (Source Material)  
Youngstown, OH

Description of Operations:

Induction heat treatment tests on uranium rods and tubes of various sizes were conducted on the site. The Corporation may have built induction heating equipment for NLO and Hanford (G.E.), 1958-1961. Radiological health and safety coverage was provided by NLO. Work was done primarily in the laboratory area of the plant on relatively large quantities of metal. Information on results of decontamination efforts is limited.

9. 3. Knoxville Iron Company      Nr. C-5317 (Source Material)  
Tennessee Avenue  
Knoxville, TN

Description of Operations:

The site was operated under NLO Subcontract Nr. 224, dated June 10, 1956. Correspondence indicates a misunderstanding with respect to health and safety monitoring of the operation and minor violation of the company's Source Material License. NLO subcontract was to sort, classify, bale, etc., uranium contamination ferrous scrap. This subcontract was completed in 1959 after processing some 6,000 tons of contaminated scrap. Results of a survey described in general correspondence and/or letter reports indicate that decontamination was completed. Specifics of the results of the survey have not been found.

4. Oliver Corporation  
423 East Michigan Avenue  
Battle Creek, MI

Nr. C-3725 (Source Material)

Description of Operations:

Production scale briquetting of green salt-magnesium blend was conducted at the site in 1957 and again in 1961 and 1962. Initial operations conducted under AEC source material license permitting possession of up to 10,000 pounds of uranium. Information contained in general correspondence indicates that the site was decontaminated to background levels, but a survey report or data reflecting the results of the decontamination effort have not been found. Analytical data sheets reflecting measurements taken during operations indicate considerable potential for contamination.

B. Sites Currently Operating Under Active NRC Licenses.

- | <u>Former NLO Subcontractor</u>  | <u>License Number</u>                                   |
|--|---|
| 1. Cincinnati Milcron, Inc.<br>(formerly Cincinnati Milling<br>& Machine Company)<br>4701 Marburg Avenue<br>Cincinnati, OH 45209 | Nr. 34-00153-03 (By-Product Material)<br>(Expires 1988) |

Description of Operations:

Company apparently built electro-chemical machining units. Conducted tests - electro-chemical machining of eight 1 inch diameter, 1 inch long cylinders of normal uranium metal. Correspondence indicates that the facility was decontaminated to background on October 7, 1963, but no closeout records were identified.

2. University of Florida  
Gainesville, FL
- Nr. SNM-50 (Part 70 License)  
(Expires 1988)

Description of Operations:

The only information available on work done under NLO subcontract is that it involved test quantities of radioactive metal.

3. Ohio State University  
Columbus, OH
- Nr. SNM-1940 (Part 70 License)  
(Expires 8/31/89)

Description of Operations:

The only information available on work done under subcontract with NLO is that test quantities of radioactive material other than metal (fluorides and oxides) and contaminated material such as TBP, magnesium fluoride and/or sludge) were involved.

ENCLOSURE 2

AEC LICENSED SITES - BY-PRODUCTS LICENSES TERMINATED

Subcontractors

License Numbers

CT 14

1. Dorr Company  
Stamford, CT

Nr. 06-17272-01 (By-Product)  
(Docket #030-12480)  
(Retired 6/30/82)

Description of Operations:

The company conducted Westport tests, ammonium diurate calcinated in a Fluo-Solid test reactor. Tests were conducted in 1954. Significant alpha contamination (air dust up to 9,347 d/m/cubic meter) was measured during operations. Decontamination activities at termination of work unknown.

SD 87

2. General Electric Plant  
Shelbyville, IN

Nr. 13-15523-01 (By-Product)  
(Docket #030-09267)  
(Retired 1983)

Description of Operations:

Approximately 500 pounds of thorium (small pieces) were compacted into electrodes on 25 and 26 June 1956. Correspondence indicates that equipment and facilities were decontaminated. Results of the decontamination effort (specifics) unknown.

MO 82

3. Petrolite Corporation  
St. Louis, MO

Nr. 24-10452-01 (By-Product)  
(Docket #030-05117)  
(Retired 1978)

Description of Operations:

The only information available is that the operations took place in September 1959 under Purchase Order with NLO. Test quantities of radioactive material, other than metal, were involved.

OH 80

4. Ohmart Corporation  
Cincinnati, OH

Nr. SMM-1091 (Part 70 License)  
(Docket #070-01144)  
(Retired 11/31/78)  
(Several other licenses retired)

Description of Operations:

The only information concerning operations at this site was found in correspondence indicating a polonium spill in 1954.

ENCLOSURE 3

NLO SUBCONTRACTORS - NO AEC LICENSE INDICATED

Subcontractor

1. Alba Craft Laboratory, Inc.  
525 South Main Street  
Oxford, OH

Description of Operations:

The firm machined large quantities of uranium slugs from 1952 through 1957 under NLO Subcontract Nr. S-247. Decontamination of the facility used was supervised by NLO. Apparently low levels of contamination left were considered insignificant in April 1957.

2. American Manufacturing Company of Texas (AMCOT)  
Fort Worth, TX

Description of Operations:

AMCOT facilities were used to pierce uranium billets and elongate uranium tubes during the period 1961-1963. During 1961 and 1962 approximately 22,000 kilograms of normal uranium, 500 kilograms of depleted uranium and 1 kilogram of U-235 were processed at the facility. Facilities were used by NLO. NLO personnel may have operated the equipment. An NLO representative was apparently in residence during the operations. NLO trip reports (March and April 1963) provide a general description of decontamination activities. Specific results of any radiological surveys conducted during the period are unknown.

3. American Steel Foundries  
Elmes-King Division  
(formerly Elmes Engineering Division)  
1150 Tennessee  
Cincinnati, OH

Description of Operations:

The firm conducted briquetting operations using a green salt/magnesium blend on a 350 ton hydraulic press. Operations were apparently conducted by NLO personnel on at least three occasions during 1954-1956. The operation conducted in March 1956 involved 2,000 pounds of green salt. A March 1956 trip report indicates that no detectible contamination was left after cleanup of the operation. Results of the cleanup after a September 1956 operation is unknown.

4. Associated Aircraft Tool & Manufacturing Company  
3660 Dixie Highway  
Fairfield, OH 45014

Description of Operations:

This firm machined large quantities of uranium slugs under NLO Subcontract Nr. S-200 during 1956. Decontamination of the facility, funded under the subcontract and accomplished by the subcontractor, was apparently completed in November 1956. An NLO trip report dated 12/11/56 suggests that the facility was decontaminated to within "current" standards. Specific results of the decontamination effort are unknown. The site is currently occupied by Force Control Industries, Inc.

5. Magnus Brass Manufacturing Company  
533 Reading Road  
Magnus Metal Division of NLO  
1029 West 7th Street  
Cincinnati, OH

Description of Operations:

Both firms machined various forms of uranium metal at the locations indicated. Magnus Brass vacated their facility in late 1955. Two pieces of equipment were moved to the Magnus Metal Division facility. Ownership and/or organizational relationships unknown. The latter operated under NLO Subcontract Nr. S-129 during the period 1955-1957. Both facilities were contaminated. Correspondence indicates that both facilities were decontaminated. However, results of the decontamination activities are unknown.

6. Stauffer-Temescal Company  
(formerly Stauffer Metals, Inc.)  
1201 South 47th Street  
Richmond, CA

Description of Operations:

This firm performed electron beam melting tests on solid uranium metal. The test conducted 4-12 April 1956 involved approximately 700 pounds of uranium metal. The test was conducted under NLO purchase order. An NLO trip report dated 5/31/61 indicates that all permanent equipment was decontaminated to "acceptable" levels and that contaminated expendable equipment, also contaminated with beryllium, was sent to a Stauffer subcontractor for sea disposal. Specifics of the decontamination effort is unknown.

List of Licensed Sites for which elimination  
from FUSRAP is contemplated

- NLO* (1) North Carolina State University, Department of Engineering Research  
Raleigh, North Carolina (Believed to have license(s))

December 1953-September 1954 - Conducted research pertaining to the measurement of thermal properties of certain granular materials under Subcontract No. S-59. The subcontract under which this work was performed contains a provision providing indemnification of NLO and the Government against claims arising as a result of work performed under the subcontract. Work was done under the technical direction of NLO. Additional research was done for the AEC under other prime and subcontracts through 1959. No information has been found that would indicate if these contracts contained release provisions.

- NLO* (2) Southern Research Institute  
917 South 20th Street  
Birmingham, Alabama (Source Material License #C-3417)

1962 - Conducted hot tensile tests on uranium metal. Three hundred pounds of normal uranium was approved for shipment to the Institute for the tests. The Institute apparently conducted research and performed tests with radioactive materials for the AEC over the period 1950 through 1962. The Institute operated under AEC Source Material License #C-3417 during the period November 1955 through May 1958 - for possession and title of 140 pounds of refined source material for research on properties of uranium-liquid metal fuel elements. No information has been found to indicate the radiological status of the site upon completion of the work for NLO in 1962.

- NLO* (3) Oregon Metallurgical Corporation  
Albany, Oregon (Special Nuclear Material License SNM-144)

Documents found indicate that this firm operated under AEC Special Nuclear Material license during the period January 1958 through November 1962. Uranium metal containing 20% U-235 was authorized for use in the Corporation's Albany Plant for alloying uranium and zirconium metal.

- NLO* (4) Ohmart Corporation  
Cincinnati, Ohio (License SNM-1091)

The only documents found indicate that the NLO Health and Safety Division was involved with a polonium spill at this location. Monitoring data (1954) doesn't indicate substantial contamination.

(5) C. I. Haynes Inc.  
Cranston, Rhode Island (May have been licensed)

In January 1964, this company conducted heat treating tests of uranium billets. Other records mention the need for a source license and an amount of 350 pounds.

List of Sites which handled large amounts  
of radioactive materials

- (1) American Machine and Foundry Company  
Brooklyn, New York

This company machined ton quantities of uranium slugs in the period 1950-1954. Prime Contract AT(30-1)-1247 with value of \$245,000. It also designed (for DuPont) a number of machine pieces for SRP. \$12 Million cost, subcontract AXC-8-1/2.

- (2) Max Zuckerman and Sons  
1925 North Kenmore Avenue  
Chicago, Illinois

This company received 700+ tons of Q-11 metal oxide residues in 1961 and 1962. The residues had economically valuable amounts of Ni and Co as well as a radium concentration of 5000 pCi/g. Residual uranium concentrations were .12% to .60% U, averaging about .23% U.

- (3) Bliss-Laughlin Steel  
Buffalo, New York

In 1952, this company provided uranium machining activities and produced at least 53 drums of scrap. Uranium machining activities supported NLO.

- (4) Dubois Company  
1120 West Front Street  
Cincinnati, Ohio

From 1960 to 1976, this firm provided various services to NLO involving natural uranium. There are few records of the activities and cleanup.

bcc:  
~~OTS~~

EM-40 (3)  
EM-42 reader  
Williams reader

EM-421:WWilliams:cn:353-5243:6/18/90:Sjoblom.1

EM-421

Williams

6/18/90

EM-42

Piore

6/18/90

EM-42

Fulmer

6/18/90